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Adoption of Alternative Technologies to Replace Gamma Blood Irradiator in Malaysia's Medical Institution: Ensuring Safety and Enabling Sustainability

Irradiation of blood components is performed before blood transfusion is carried out to prevent Transfusion-Associated Graft-versus-Host Disease (TA-GvHD) especially for patients with defective immune system such as cancer and HIV patients. Although blood product irradiation is currently performed using Cesium-137 (Cs-137) source but X-ray irradiation has become more reliable and efficient with no physical security protection requirements. In Malaysia, Universiti Tunku Abdul Rahman Hospital are the first medical institution that has installed X-ray Irradiator followed by the National Blood Center, which shall start the installation this year. To ensure an effective transition of blood irradiation technology to alternative technology based on X-ray, a committee at the ministry level has been established to evaluate the proposal replacement of Gamma blood irradiators to alternative technologies. A notification letter by the Director General of Health also has been distributed to all licensees regarding the future purchase and replacement of Gamma blood irradiators to alternative technologies. However to adopt alternative technologies there are several considerations that need to be defined which are of interest to all stakeholders such as End Users, Regulators, Other Government Agencies, Device Manufacturers, Professional Association and International Initiatives and the potential challenges from Risk Aversion & Complacency, Licensing, Changes to Operations, Engineering & Finance and Disposal. In conclusion, the transition from Gamma blood irradiators to alternative technologies is still under implementation phase with the consideration of potential adoption challenges, legal requirements and the role of key stakeholders involved.

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